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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,456	06/23/2003	Per Balschmidt	6460.200-US	9387

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EXAMINER	
LIU, SAMUEL W	
ART UNIT	**PAPER NUMBER**
1653	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/602,456	BALSCHMIDT ET AL.	
	Examiner	Art Unit	
	Samuel W. Liu	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-11 and 13-23* is/are pending in the application.

4a) Of the above claim(s) *none* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-11 and 13-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/21/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the claims

Claims 1, 3-11 and 13-23 are pending.

The amendment filed 7/21/06 which amends claims 1, 3, 13and 20-23, and cancels claims2 and 12 has been entered. Also, the applicants' request (filed 7/21/06) for extension of time of three months has been entered. Pending 1, 3-11 and 13-23 are examined in this Office action.

Please note that ground of objection and/or rejection not explicitly restated and/or set forth below are withdrawn.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copy has been filed in parent Application No. "Denmark PA 200201007 filed 6/27/2002. Also, Applicant's claim for the benefit of a prior-filed application 60394154 filed 7/30/2002 under 35 U.S.C. 119(e) is acknowledged.

IDS

The reference cited in the IDS filed 7/21/06 has been considered by Examiners.

Specification/Claims Objection

The disclosure is objected to because of the following informalities:

The specification needs to clarify the recitations, e.g., "B28" and "A21" (page 3) throughout the specification by stating that "Lys(B28)" refers to lysine residue of B chain of insulin; this will applied to the recitations similar to "Lys(B28). The clarification will eliminate

the similar issue in claims 16-19 where "Lys(B28)", "Pro(B29)", "Lys(B3)", "Glu(B29)", "des(B30)", "Gly(A21)", "Arg(B31)", and "Arg(B32)" are recited.

The applicants' response to the objection

On pages 8-9, the response filed 7/26/06 submits that "B28" represents a standard nomenclature and refers to insulin B chain residue 28.

The applicants' argument is not persuasive because residue 28 of naturally-occurring insulin B chain is not Lys but Asn, and insulin B chain consists of only 31 amino acid residues, i.e., there is no residue 32 (see "Arg(**B32**)") in insulin isolated from *corpora cardiaca* (Hetru et al. (1991) *Eur. J. Biochem.* 201, 495-499); thus, indication that "Lys(B28)" is a substitution for residue 28 in insulin B chain, *and* clarifying "Arg(**B32**)" appear to be necessary, for example.

Claim Rejections - 35 USC § 112, the second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter that the applicant regards as his invention.

Claims 1, 3-11 and 13-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "*a derivative of an analogue*". The specification does not define/teach what is the "**derivative of** the peptide **analogue**". On page 2, lines 22-24, the specification has defined that the derivative designates analogue of the parent peptide; i.e., the derivative is an analogue thereof. According to this definition, the recitation "*a derivative of an analogue*" is

awkward and indefinite (suggest to delete either derivative or analogue). Similarly, see also claim 13. The dependent claims are also rejected.

The applicants' response to the rejection under 35 USC 112, second paragraph

On page 10, the response filed 7/26/06 argues that the recitation is not indefinite as the derivative is defined as an analogue of the parent peptide. The applicants' argument is found to be unpersuasive because the specification also defines the derivative is a peptide which has modified from the parent peptide, i.e., the derivative is indistinct from the analogue according the specification definition thereof. Thus, the recitation is awkward and indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Marini J. L. (US Pat. No. 6328987 B1) taken with Herschler, R. J. (US Pat. No. 4973605).

In the patent claims 1-3, Marini teaches a composition comprising human alpha interferon 2 and methylsulfonylmethane (MSM, i.e., dimethyl sulfone), as applied to instant claim 1 and 3.

On column 3, lines 17-24 and columns 4-5, Marini teaches that the composition is aqueous solution or suspension, as applied to instant claims 4-5.

In the patent claims 7-8, Marini teaches that topically administering the composition to a subject, as applied to instant claims 6-11. Note that the administering routes, e.g., injection (claim 6), subcutaneous (claim 7), intramuscular (claim 8), intravenous (claim 9), pulmonal (claim 10), and topical (claim 11) administrations, refer to intended use of the claimed composition and have little patentable weight; and thus, the above Martini's teaching is applicable to claims 6-11.

Yet, Martini does not expressly teach the concentration of MSM administered.

Herschler teaches suitable MSM concentration is about 5.5-10.9 mg/ml; this MSM concentration range is non-toxic (see Example 28, column 22, line 67 to column 23, line 1). Considering MSM molecular weight is 90.08, "5.5-10.9 mg/ml" is equivalent to 61-121 mM, as applied to instant claims 1 and 3.

One of ordinary skill in the art at the time the invention was made would have prepared the pharmaceutical composition comprising MSM and bioactive agent, e.g., human alpha interferon peptide wherein the MSM concentration is in a non-toxic range ~ 60-120 mM. One skilled in the art would have been motivated to do this because Herschler has taught that

MSM has variable toxicities and that high MSM concentration is lethal to the subject administered (see column 23, lines 3-5), and because Herschler has identified a non-toxic concentration of MSM for administration, i.e., concentration ranges "5.5-10.9 mg/ml" equivalent to 61-121 mM. One skilled in the art would have employed the non-toxic MSM concentration taught by Herschler to prepare the pharmaceutical composition thereof.

Therefore, the claimed invention was *prima facie* obvious to make and use the invention at the time it was made.

Claims 1, 3-11 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Pierce, S. W. (US Pat. No. 6924273 B2) taken with Herschler, R. J. (US Pat. No. 4973605).

In the patent claim 10, Pierce teaches a composition comprising insulin and MSM, as applied to instant claims 1, 3 and 13-14.

On column 12, lines 12-14, Pierce teaches that the composition is aqueous solution or suspension, as applied to instant claims 4-5.

In the patent claim 5, Pierce teaches that the composition is suitable for administration, e.g., oral administration, as applied to instant claims 6-11. Note that the administering routes, e.g., injection (claim 6), subcutaneous (claim 7), intramuscular (claim 8), intravenous (claim 9), pulmonal (claim 10), and topical (claim 11) administrations refer to intended use of the claimed composition and have little patentable weight; and thus, the above Piece teaching is applicable to claims 6-11.

Yet, Pierce does not expressly teach the concentration of MSM administered,

Herschler teaches suitable MSM concentration is about 5.5-10.9 mg/ml; this MSM

concentration range is non-toxic (see Example 28, column 22, line 67 to column 23, line 1). Considering MSM molecular weight is 90.08, "5.5-10.9 mg/ml" is equivalent to 61-121 mM, as applied to instant claims 1 and 3.

One of ordinary skill in the art at the time the invention was made would have prepared the pharmaceutical composition comprising MSM and bioactive agent, e.g., human alpha interferon peptide wherein the MSM concentration is in a non-toxic range ~ 60-120 mM. One skilled in the art would have been motivated to do this because Herschler has taught that MSM has variable toxicities and that high MSM concentration is lethal to the subject administered (see column 23, lines 3-5), and because Herschler has identified a non-toxic concentration of MSM for administration, i.e., concentration ranges "5.5-10.9 mg/ml" equivalent to 61-121 mM. One skilled in the art would have employed the non-toxic MSM concentration taught by Herschler to prepare the pharmaceutical composition thereof.

Therefore, the claimed invention was *prima facie* obvious to make and use the invention at the time it was made.

Conclusion

No claims are allowed

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the

THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Wei Liu whose telephone number is 571-272-0949. The examiner can normally be reached from 9:00 a.m. to 5:00 p.m. on weekdays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon, Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval IPAIRI system. Status information for published applications may be obtained from either Private PAIR or Public PAG. Status information for unpublished applications is available through Private PAG only. For more information about the PAN system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Samuel W. Liu, Ph.D.
Art Unit 1653, Examiner
September 7, 2006

KAREN COCHRANE CARLSON, PH.D
PRIMARY EXAMINER